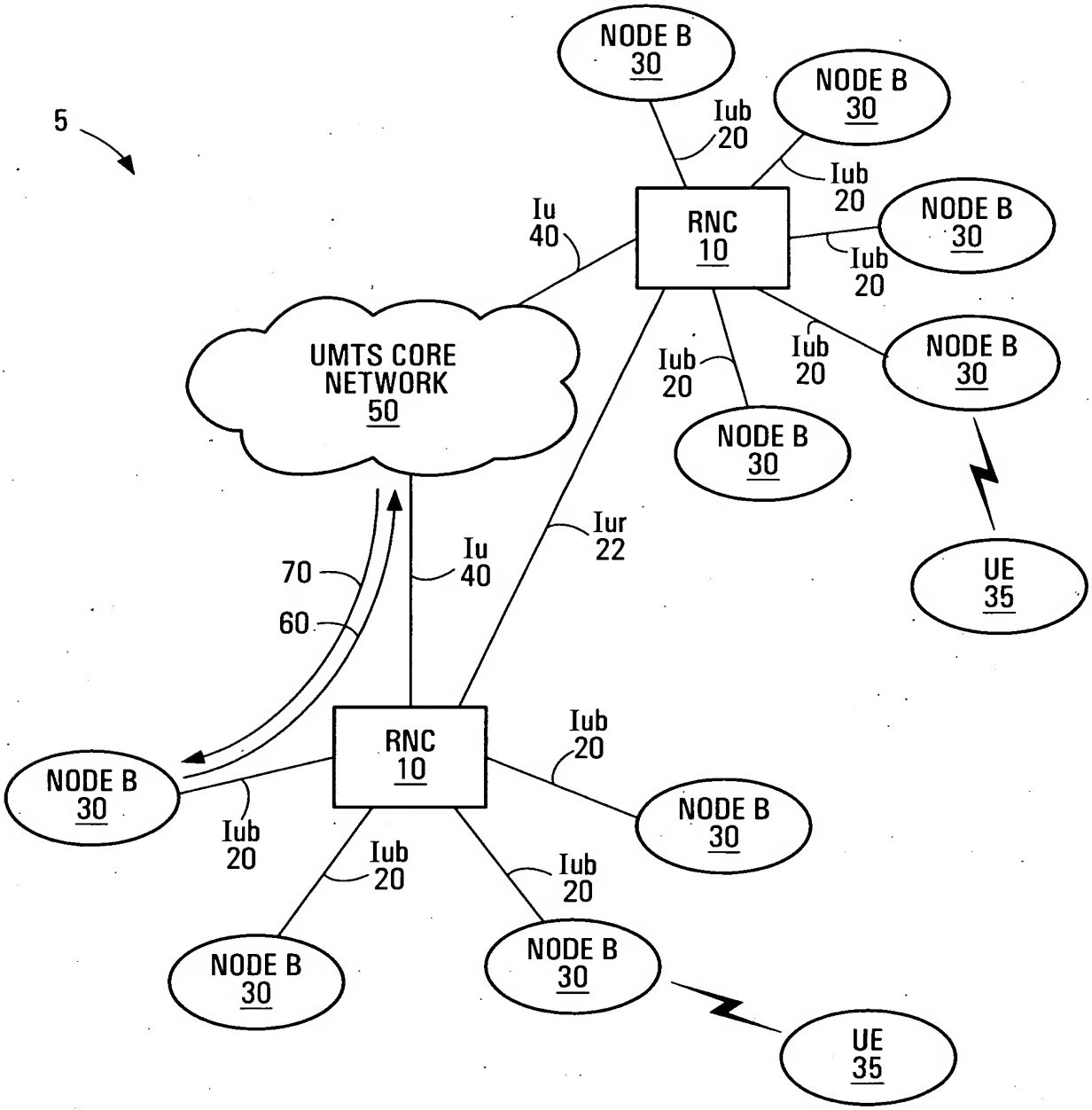

FIG. 1
(PRIOR ART)

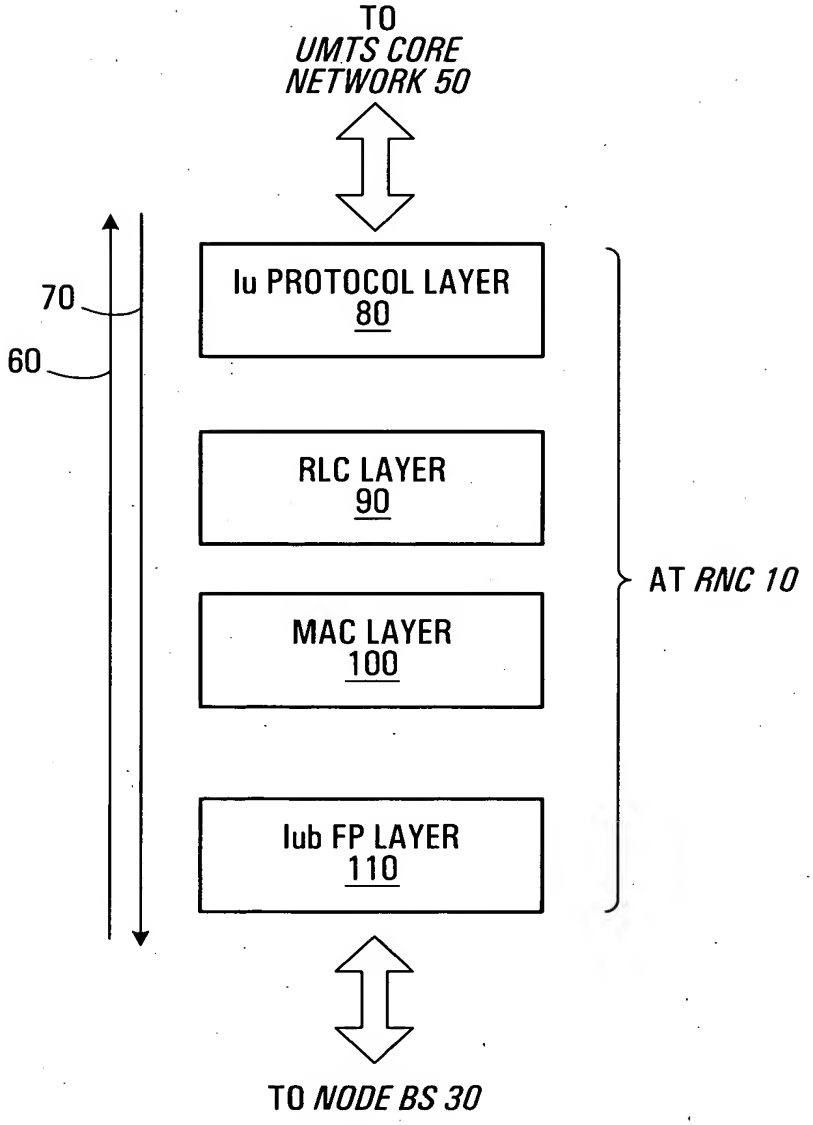

FIG. 2
(PRIOR ART)

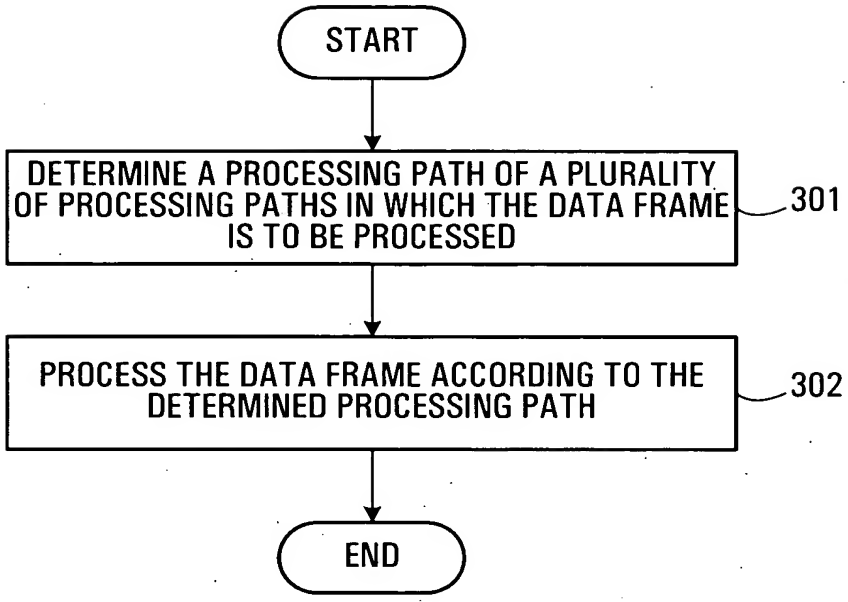
START
DETERMINE A PROCESSING PATH OF A PLURALITY OF PROCESSING PATHS IN WHICH THE DATA FRAME IS TO BE PROCESSED
301
PROCESS THE DATA FRAME ACCORDING TO THE DETERMINED PROCESSING PATH
302
END

FIG. 3

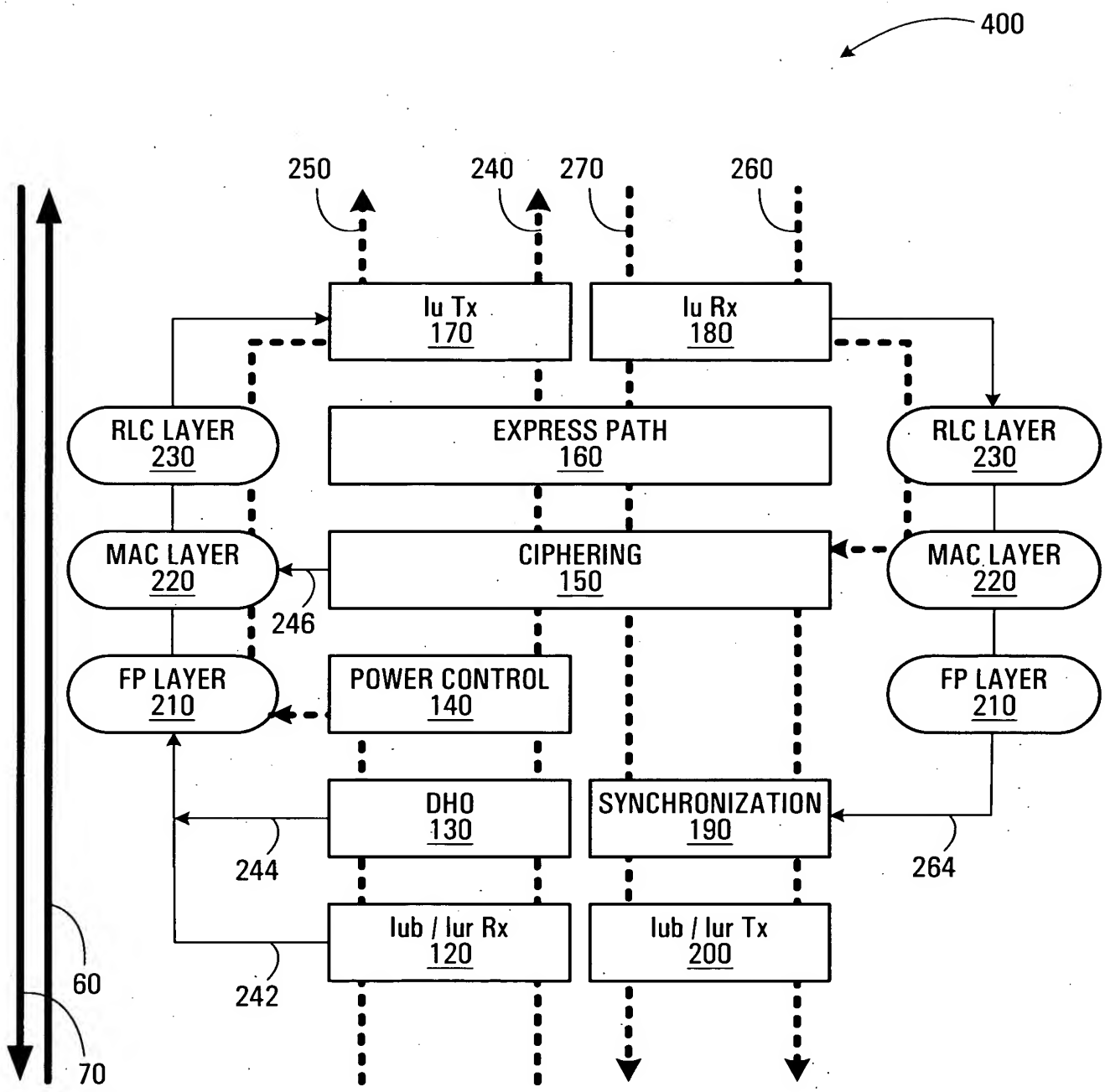
400
250
240
270
260
Iu Tx
170
Iu Rx
180
RLC LAYER
230
EXPRESS PATH
160
RLC LAYER
230
MAC LAYER
220
CIPHERING
150
MAC LAYER
220
246
FP LAYER
210
POWER CONTROL
140
FP LAYER
210
DHO
130
SYNCHRONIZATION
190
244
264
Iub / Iur Rx
120
Iub / Iur Tx
200
242
60
70

FIG. 4

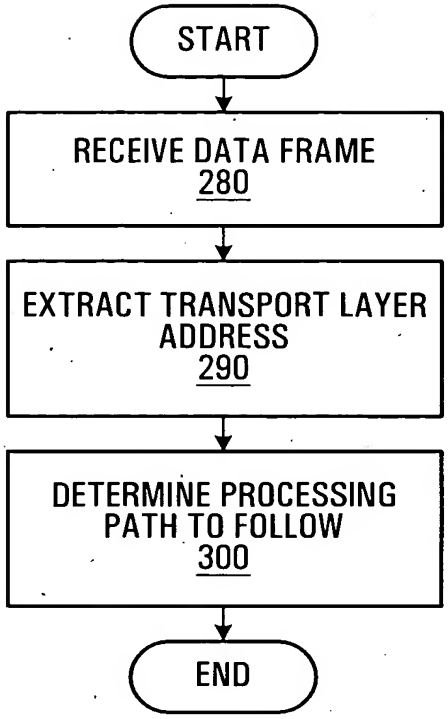
START
RECEIVE DATA FRAME
280
EXTRACT TRANSPORT LAYER ADDRESS
290
DETERMINE PROCESSING PATH TO FOLLOW
300
END

FIG. 5A

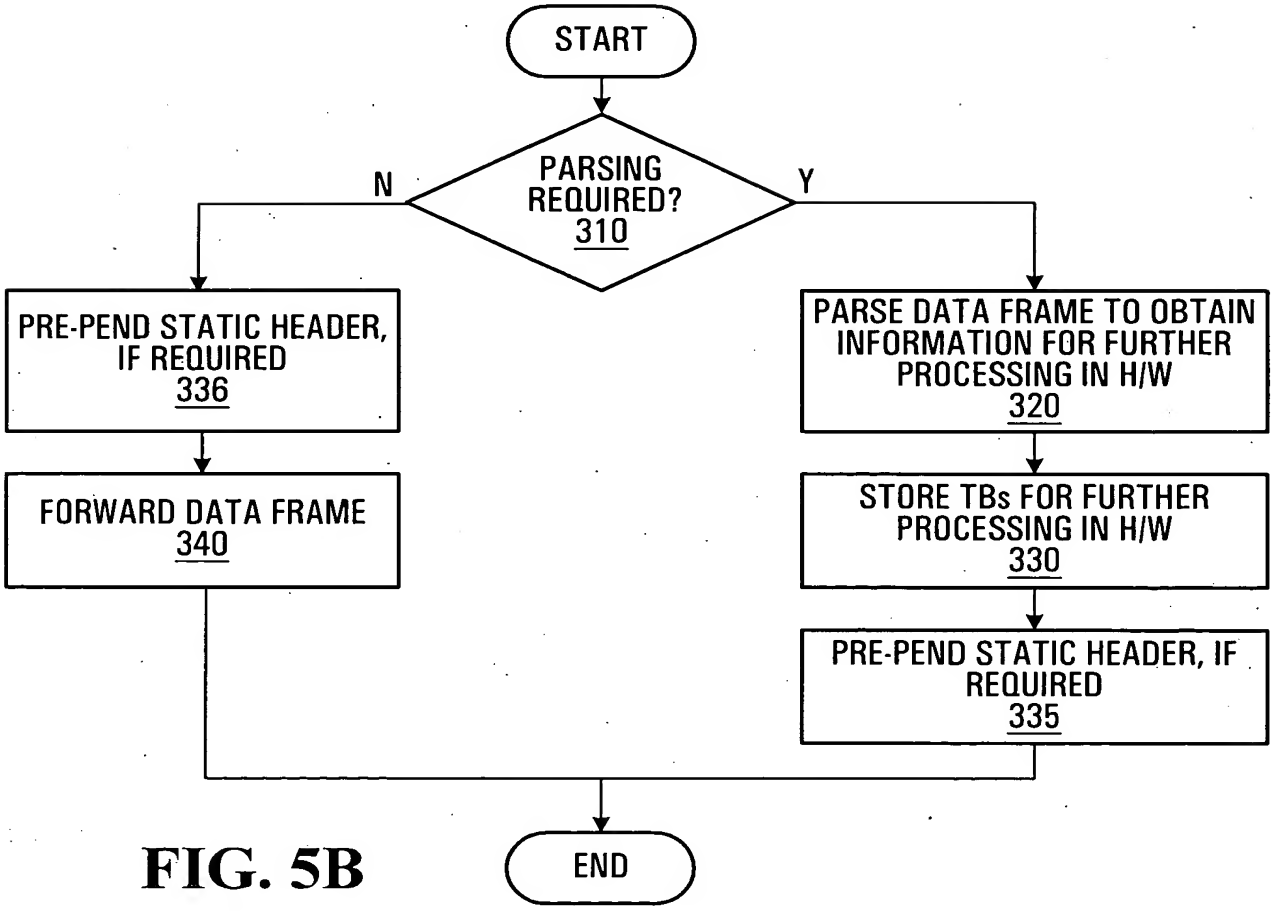
START
PARSING REQUIRED?
310
N
Y
PRE-PEND STATIC HEADER, IF REQUIRED
336
FORWARD DATA FRAME
340
PARSE DATA FRAME TO OBTAIN INFORMATION FOR FURTHER PROCESSING IN H/W
320
STORE TBs FOR FURTHER PROCESSING IN H/W
330
PRE-PEND STATIC HEADER, IF REQUIRED
335
END

FIG. 5B

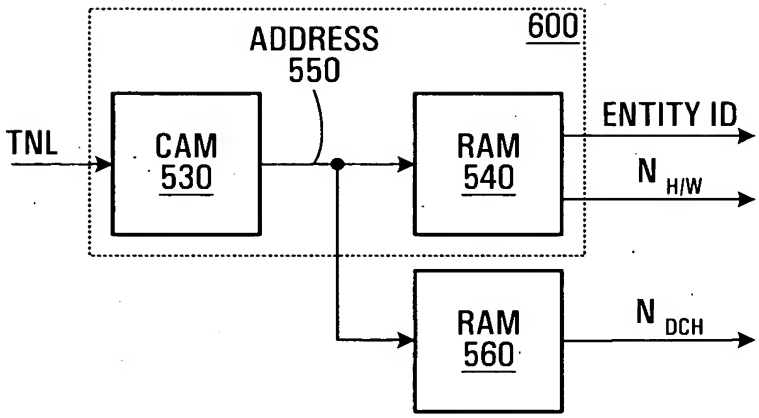

FIG. 6

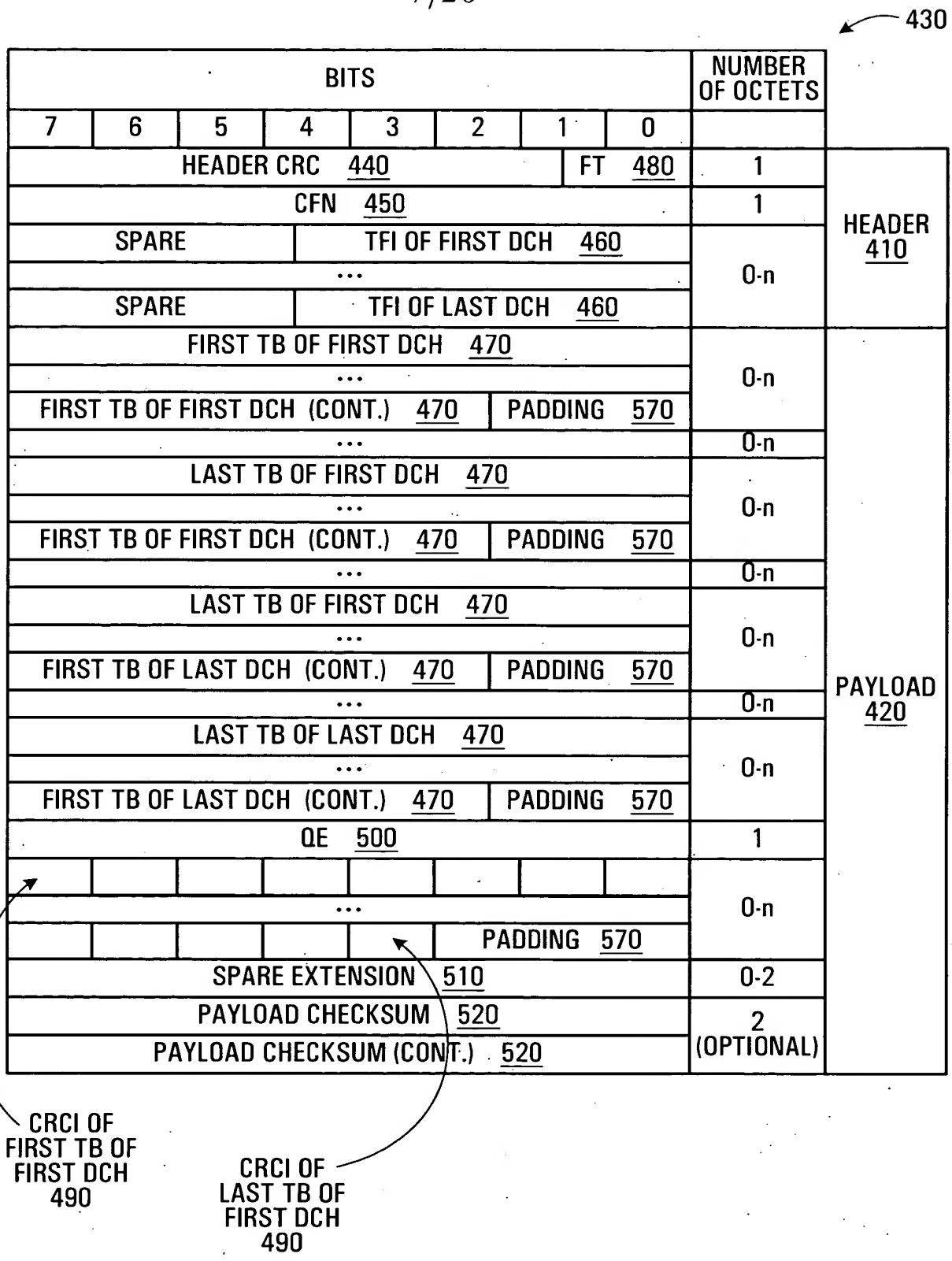

FIG. 7
(PRIOR ART)

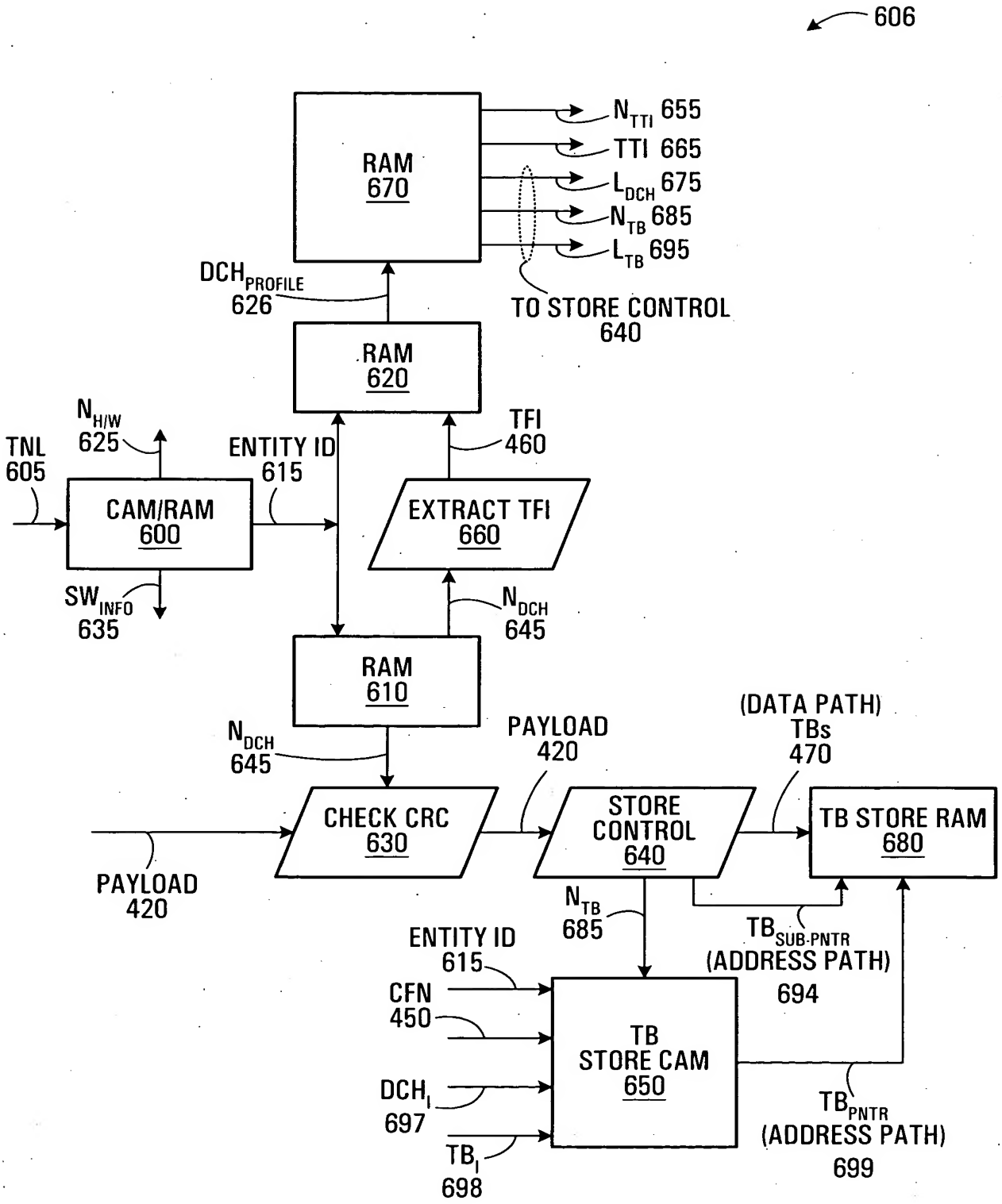
606
RAM 670
N_{TTI} 655
TTI 665
L_{DCH} 675
N_{TB} 685
L_{TB} 695
$DCH_{PROFILE}$ 626
TO STORE CONTROL 640
RAM 620
$N_{H/W}$ 625
TFI 460
TNL 605
ENTITY ID 615
CAM/RAM 600
EXTRACT TFI 660
SW_{INFO} 635
N_{DCH} 645
RAM 610
N_{DCH} 645
PAYLOAD 420
(DATA PATH) TBs 470
CHECK CRC 630
STORE CONTROL 640
TB STORE RAM 680
PAYLOAD 420
N_{TB} 685
$TB_{SUB-PNTR}$ (ADDRESS PATH) 694
ENTITY ID 615
CFN 450
TB STORE CAM 650
DCH_I 697
TB_I 698
TB_{PNTR} (ADDRESS PATH) 699

FIG. 8

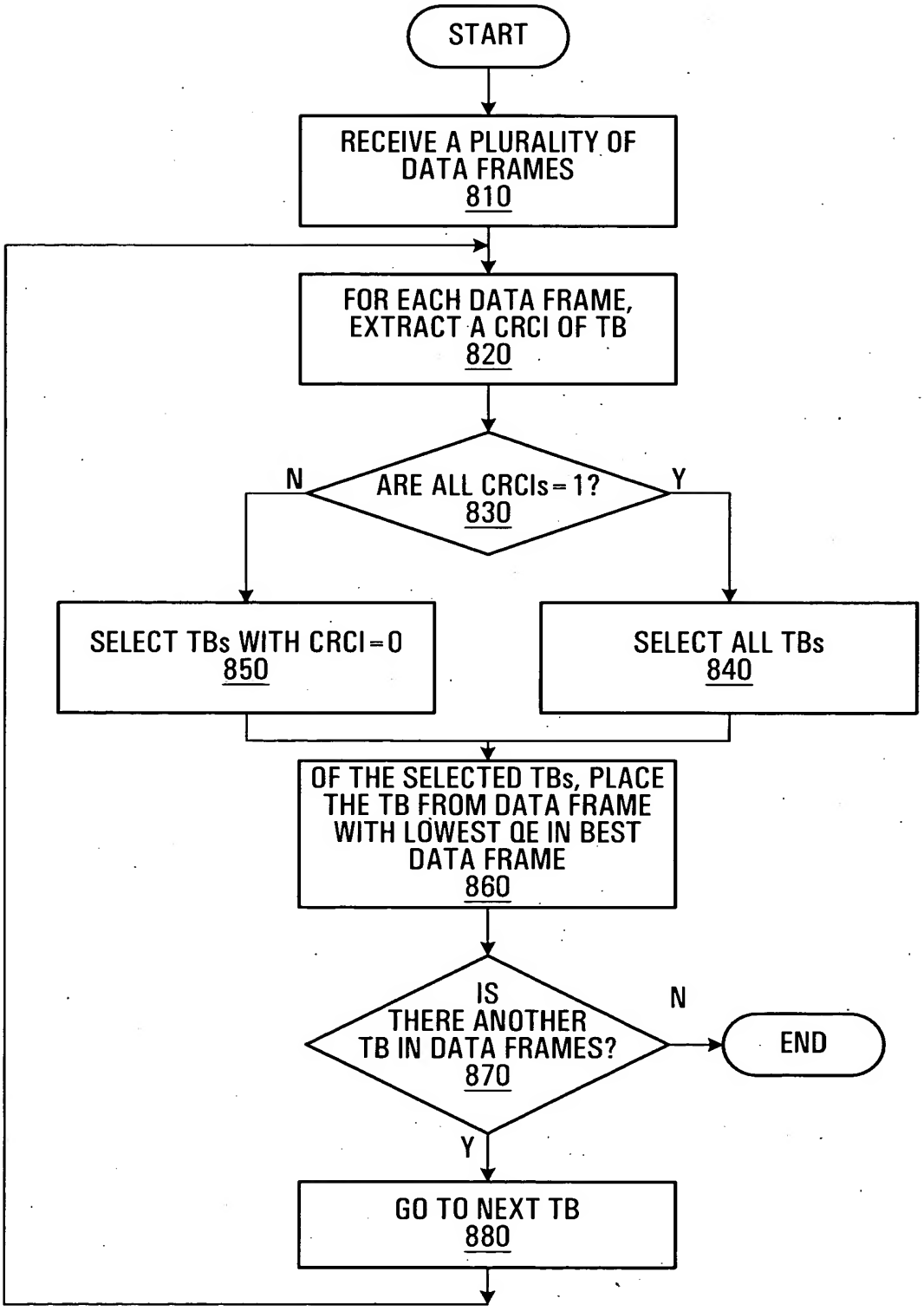

FIG. 9 *(PRIOR ART)*

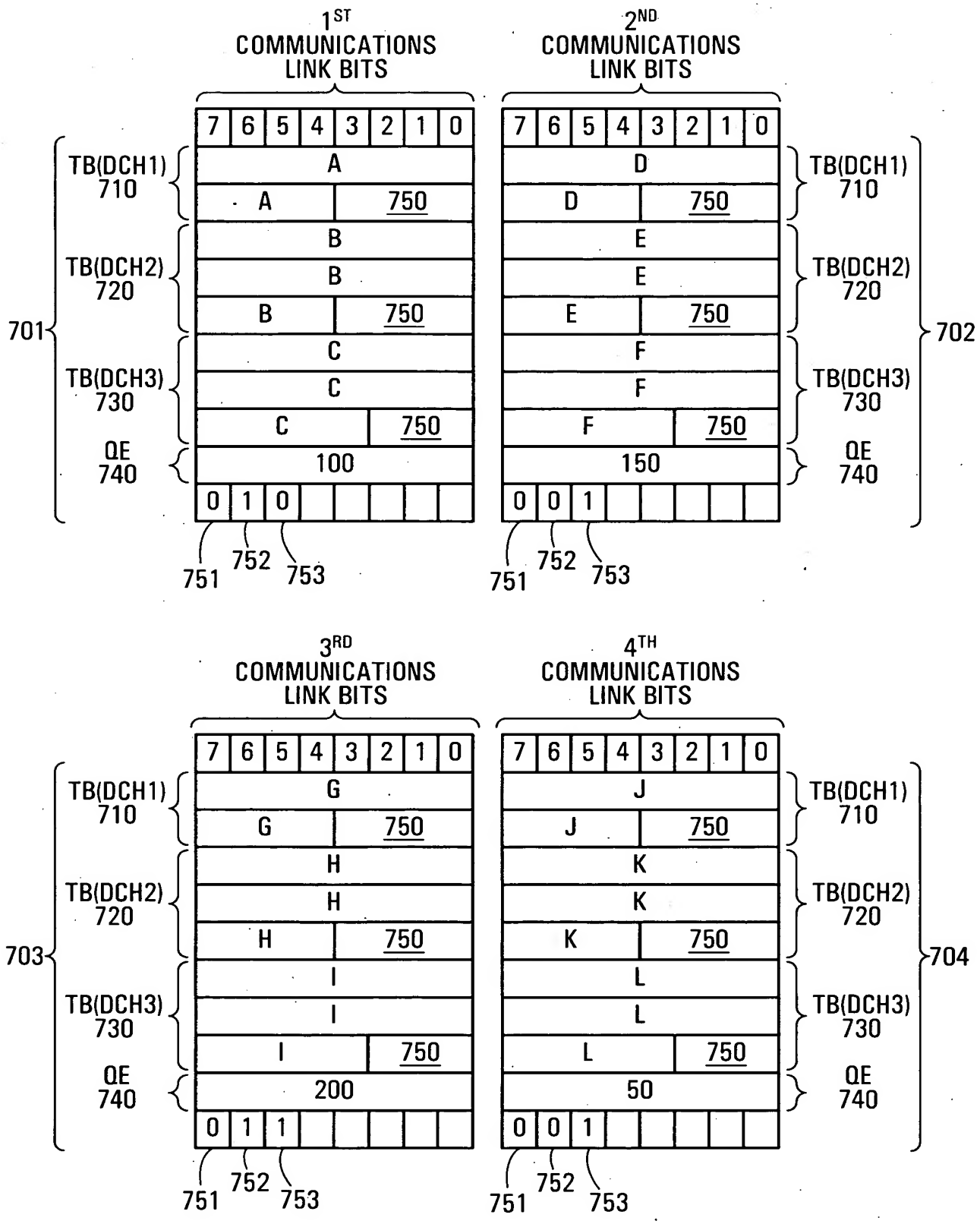

FIG. 10A *(PRIOR ART)*

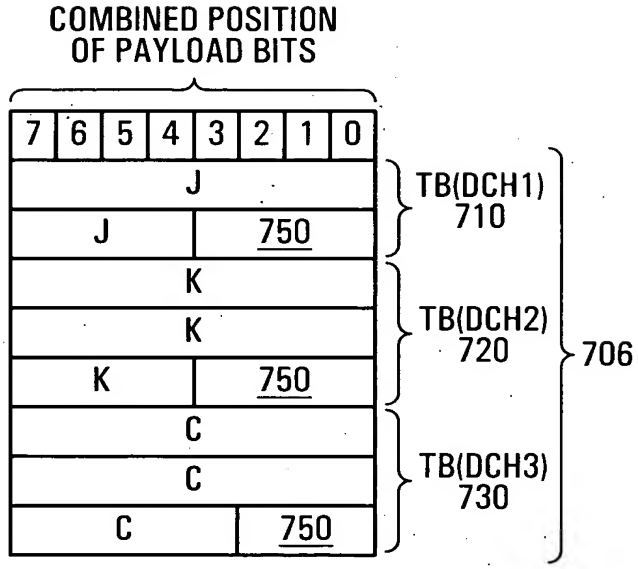

FIG. 10B
(PRIOR ART)

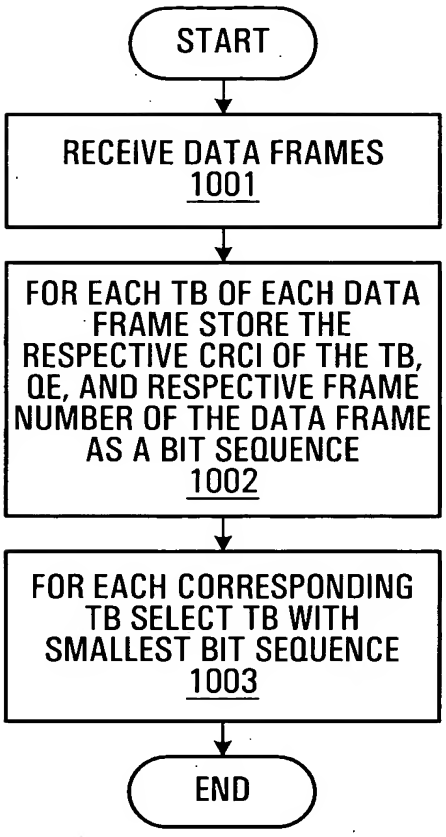
START
RECEIVE DATA FRAMES
1001
FOR EACH TB OF EACH DATA FRAME STORE THE RESPECTIVE CRCI OF THE TB, QE, AND RESPECTIVE FRAME NUMBER OF THE DATA FRAME AS A BIT SEQUENCE
1002
FOR EACH CORRESPONDING TB SELECT TB WITH SMALLEST BIT SEQUENCE
1003
END

FIG. 11A

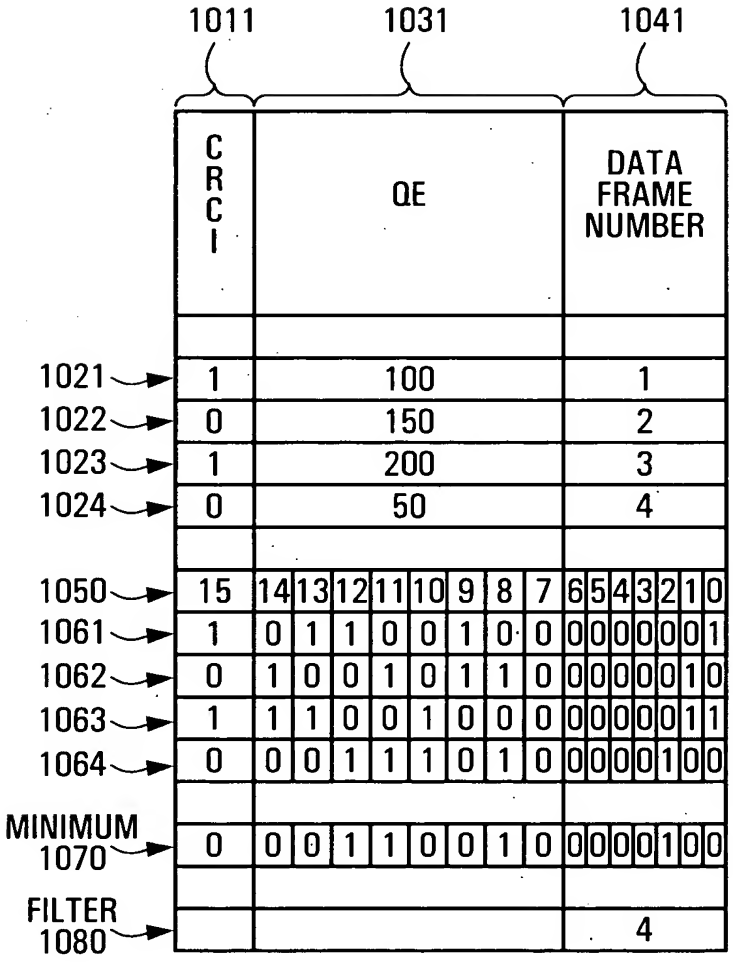
1011
1031
1041
CRCI
QE
DATA FRAME NUMBER
1021
1022
1023
1024
1050
1061
1062
1063
1064
MINIMUM 1070
FILTER 1080
100
150
200
50
15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
1 0 1 1 0 0 1 0 0 0 0 0 0 0 1
0 1 0 0 1 0 1 1 0 0 0 0 0 1 0
1 1 1 0 0 1 0 0 0 0 0 0 0 1 1
0 0 0 1 1 1 0 1 0 0 0 0 1 0 0
0 0 0 1 1 0 0 1 0 0 0 0 1 0 0
4

FIG. 11B

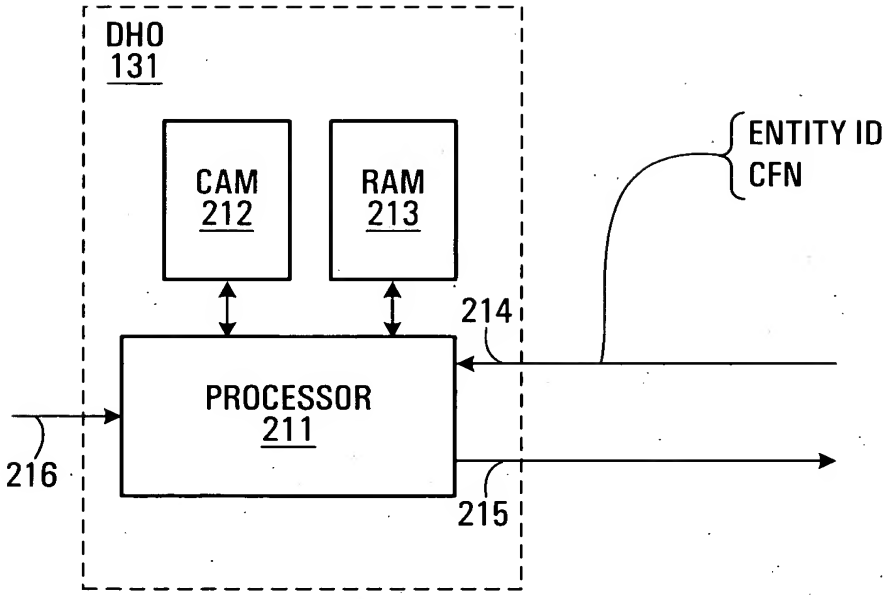
DHO
131
CAM
212
RAM
213
ENTITY ID
CFN
214
PROCESSOR
211
216
215

FIG. 11C

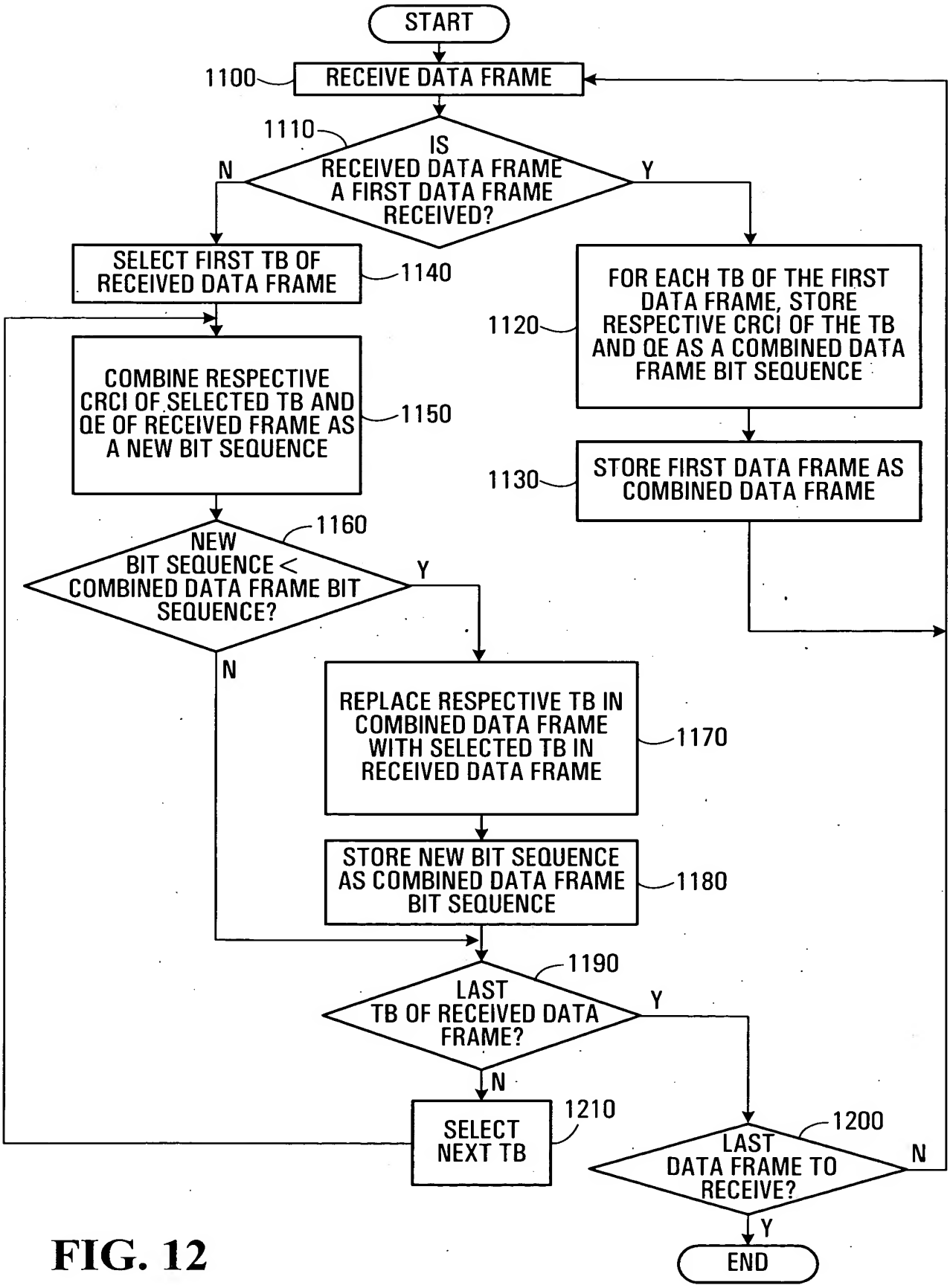
START
1100
RECEIVE DATA FRAME
1110
IS RECEIVED DATA FRAME A FIRST DATA FRAME RECEIVED?
N
Y
SELECT FIRST TB OF RECEIVED DATA FRAME
1140
FOR EACH TB OF THE FIRST DATA FRAME, STORE RESPECTIVE CRCI OF THE TB AND QE AS A COMBINED DATA FRAME BIT SEQUENCE
1120
COMBINE RESPECTIVE CRCI OF SELECTED TB AND QE OF RECEIVED FRAME AS A NEW BIT SEQUENCE
1150
STORE FIRST DATA FRAME AS COMBINED DATA FRAME
1130
1160
NEW BIT SEQUENCE < COMBINED DATA FRAME BIT SEQUENCE?
Y
N
REPLACE RESPECTIVE TB IN COMBINED DATA FRAME WITH SELECTED TB IN RECEIVED DATA FRAME
1170
STORE NEW BIT SEQUENCE AS COMBINED DATA FRAME BIT SEQUENCE
1180
1190
LAST TB OF RECEIVED DATA FRAME?
Y
N
SELECT NEXT TB
1210
1200
LAST DATA FRAME TO RECEIVE?
N
Y
END

FIG. 12

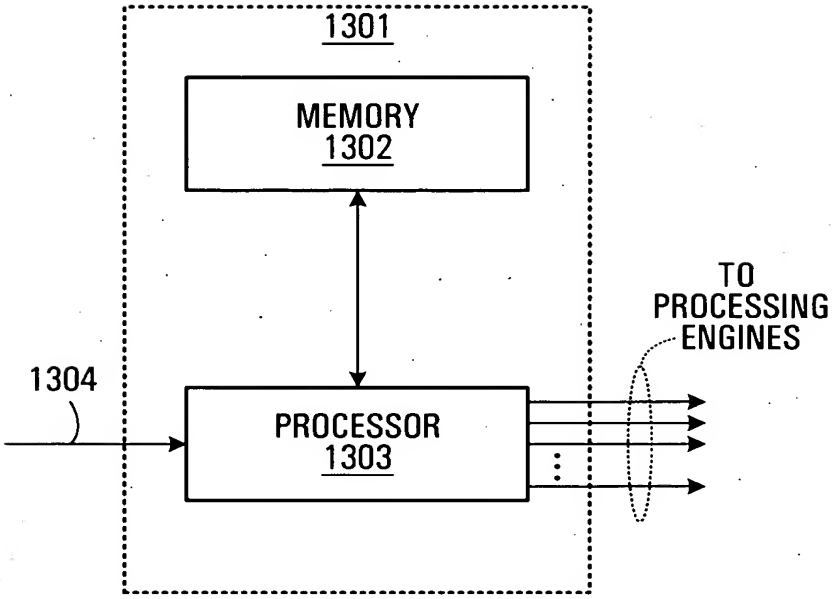
1301
MEMORY
1302
TO
PROCESSING
ENGINES
1304
PROCESSOR
1303

FIG. 13

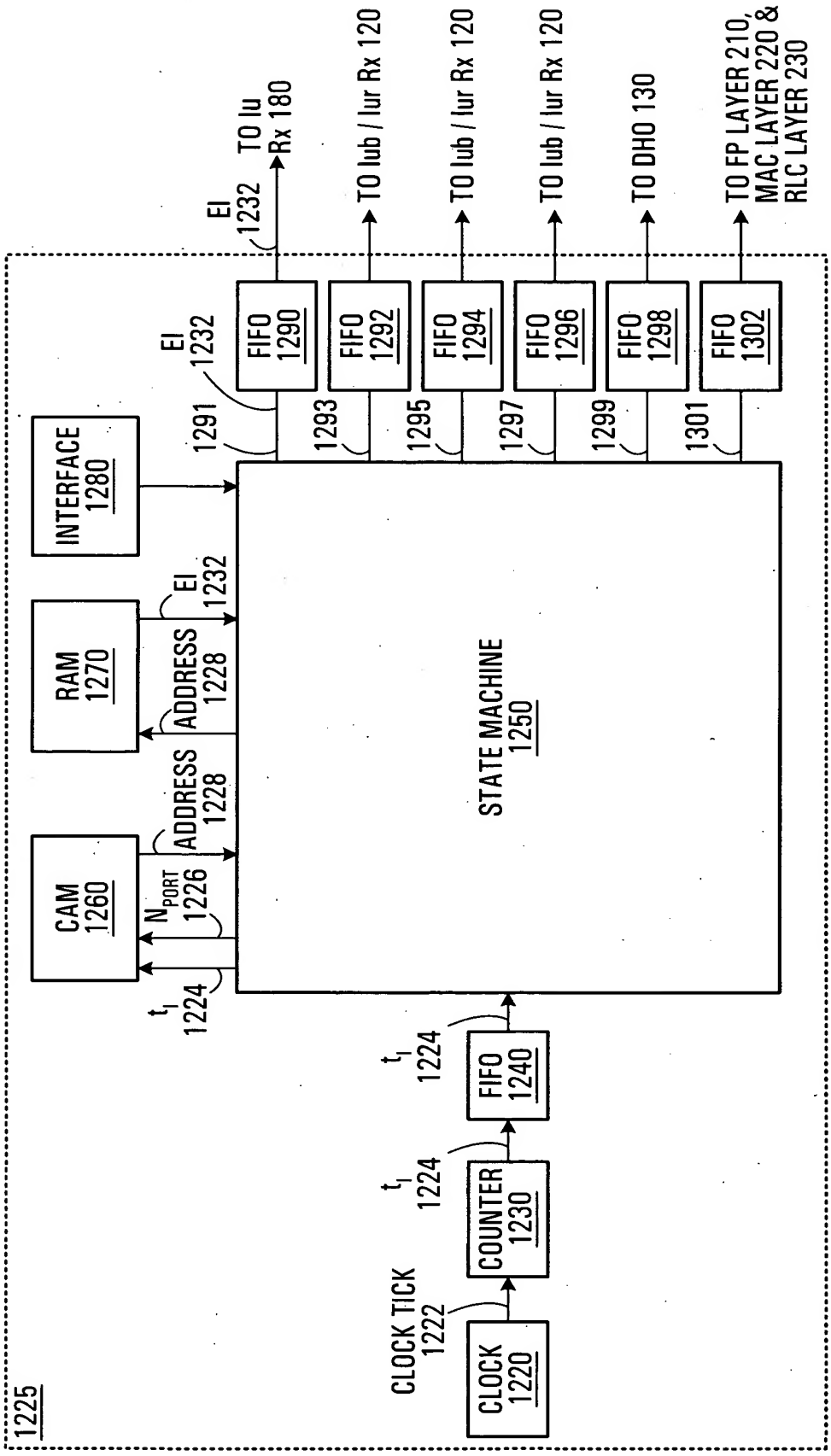
1225
CLOCK 1220
CLOCK TICK 1222
COUNTER 1230
FIFO 1240
t_1 1224
CAM 1260
N_{PORT} 1226
ADDRESS 1228
RAM 1270
ADDRESS 1228
EI 1232
INTERFACE 1280
STATE MACHINE 1250
EI 1232
1291
1293
1295
1297
1299
1301
FIFO 1290
FIFO 1292
FIFO 1294
FIFO 1296
FIFO 1298
FIFO 1302
EI 1232
TO Iu Rx 180
TO Iub / Iur Rx 120
TO Iub / Iur Rx 120
TO Iub / Iur Rx 120
TO DHO 130
TO FP LAYER 210, MAC LAYER 220 & RLC LAYER 230

FIG. 14

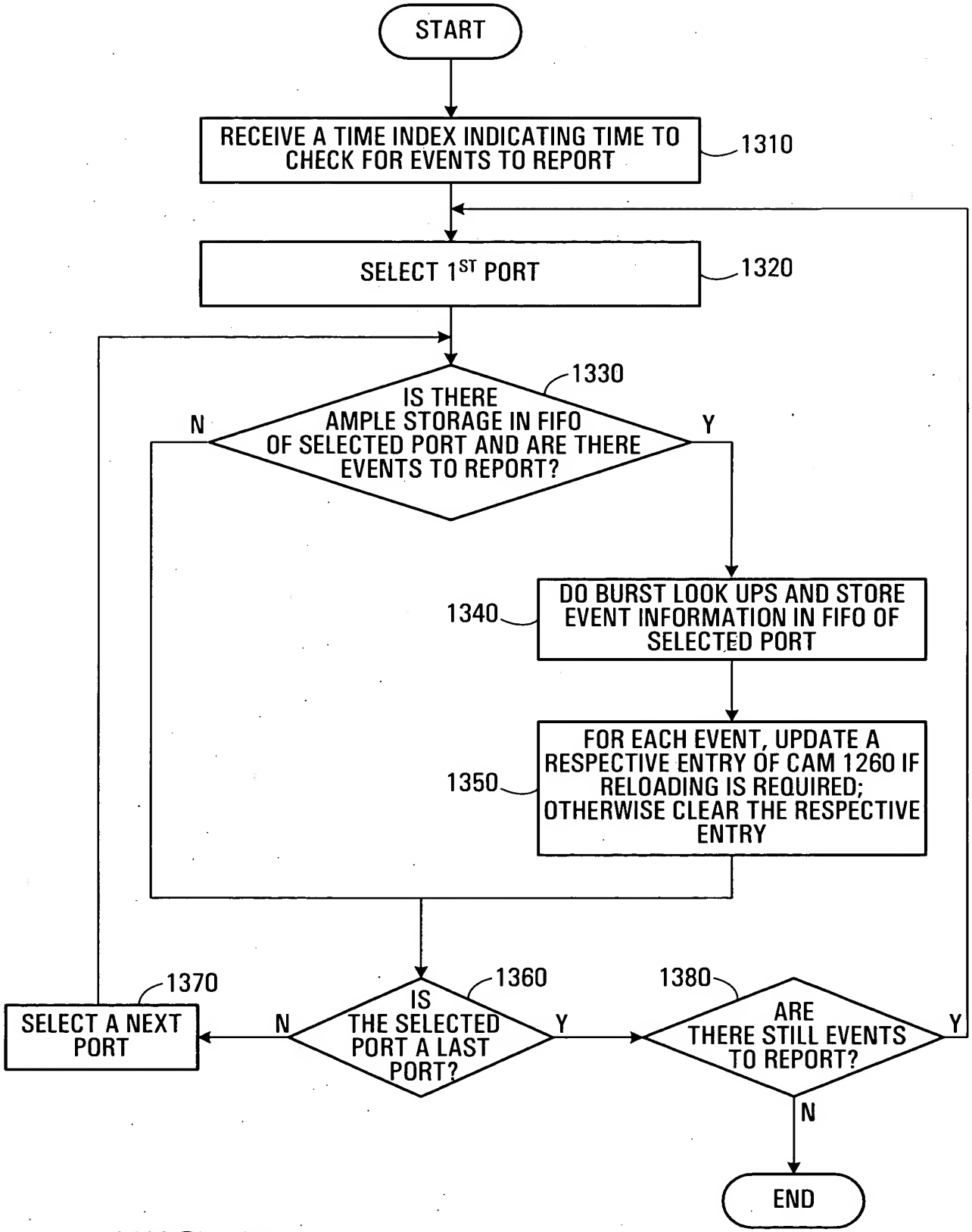
START
RECEIVE A TIME INDEX INDICATING TIME TO CHECK FOR EVENTS TO REPORT
1310
SELECT 1ST PORT
1320
1330
IS THERE AMPLE STORAGE IN FIFO OF SELECTED PORT AND ARE THERE EVENTS TO REPORT?
N
Y
1340
DO BURST LOOK UPS AND STORE EVENT INFORMATION IN FIFO OF SELECTED PORT
1350
FOR EACH EVENT, UPDATE A RESPECTIVE ENTRY OF CAM 1260 IF RELOADING IS REQUIRED; OTHERWISE CLEAR THE RESPECTIVE ENTRY
1360
IS THE SELECTED PORT A LAST PORT?
N
Y
1370
SELECT A NEXT PORT
1380
ARE THERE STILL EVENTS TO REPORT?
Y
N
END

FIG. 15

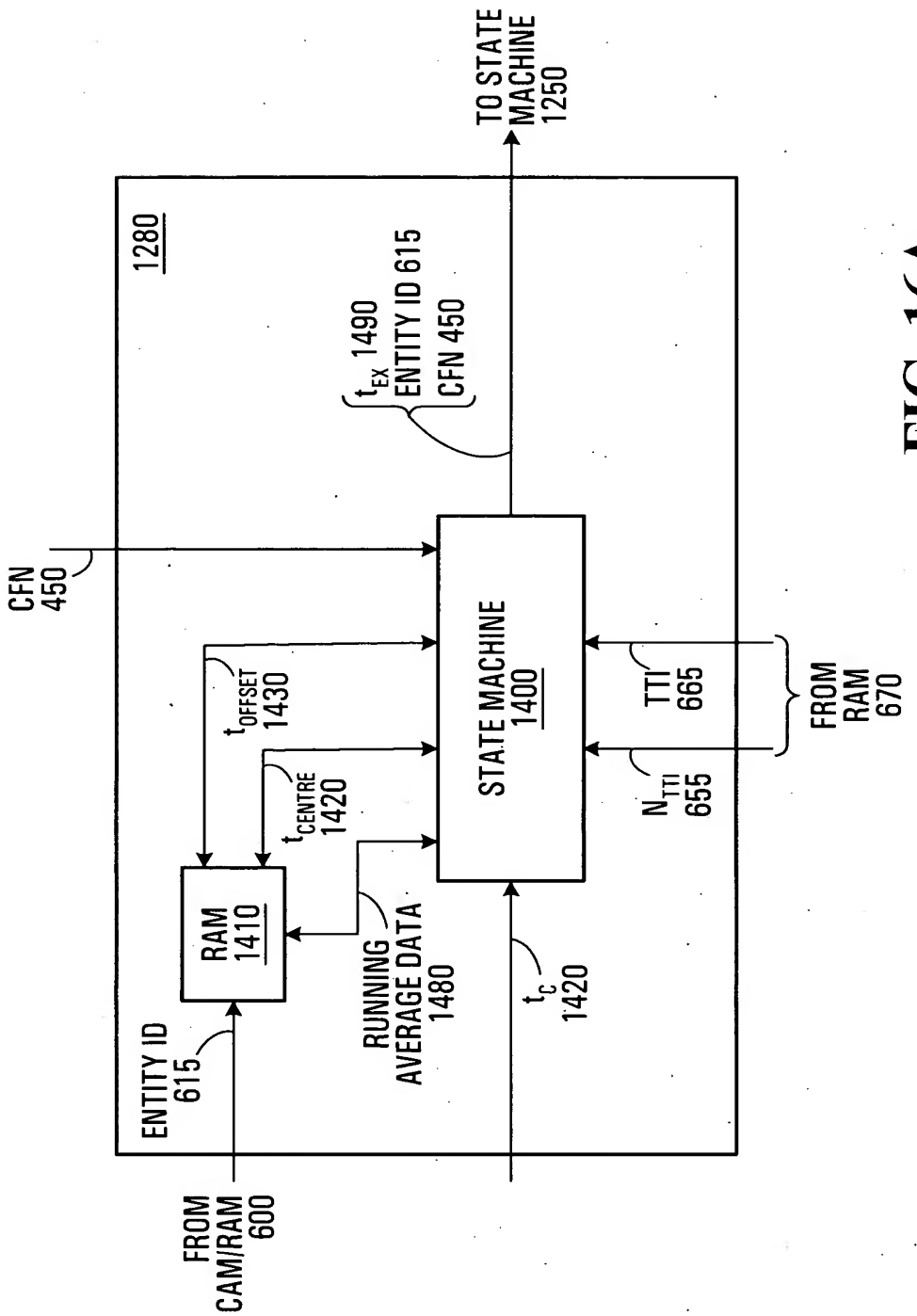
TO STATE MACHINE 1250
1280
t_{EX} 1490
ENTITY ID 615
CFN 450
CFN 450
STATE MACHINE 1400
t_{OFFSET} 1430
t_{CENTRE} 1420
RAM 1410
RUNNING AVERAGE DATA 1480
t_c 1420
TTI 665
N_{TTI} 655
FROM RAM 670
ENTITY ID 615
FROM CAM/RAM 600

FIG. 16A

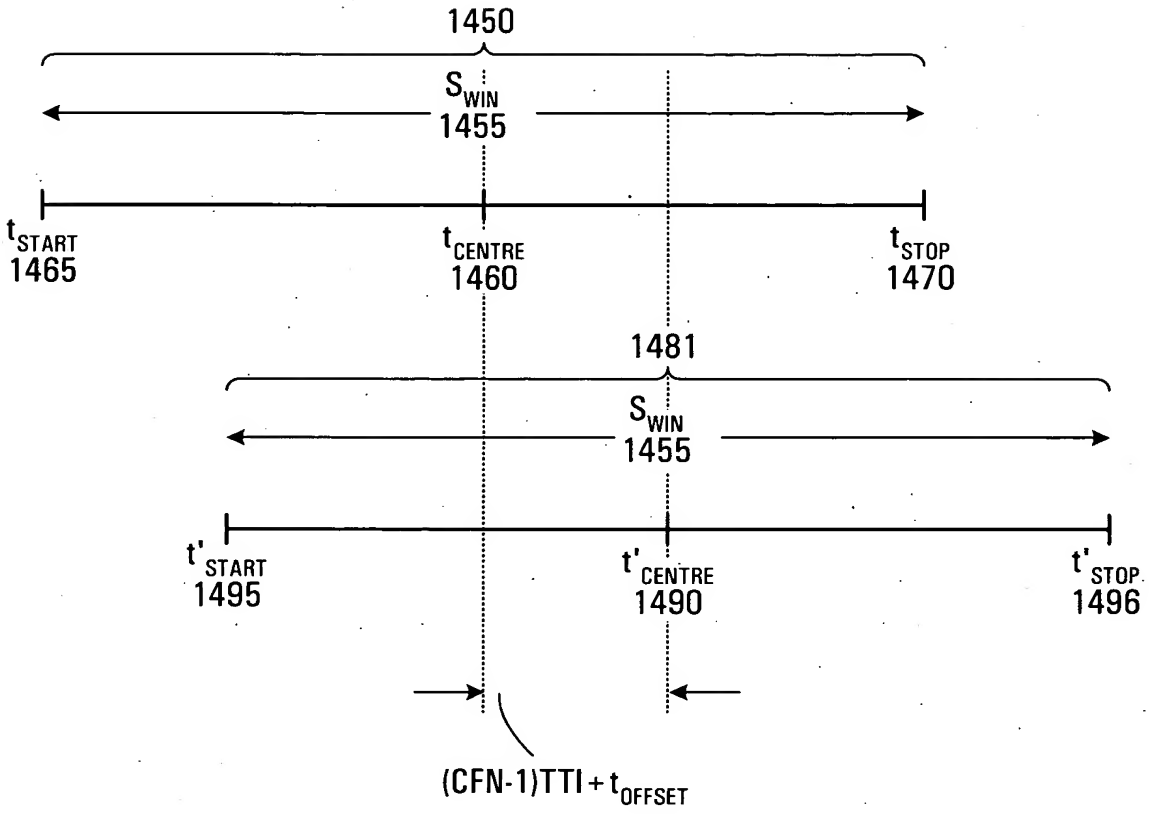
1450
S_{WIN}
1455
t_{START}
1465
t_{CENTRE}
1460
t_{STOP}
1470
1481
S_{WIN}
1455
t'_{START}
1495
t'_{CENTRE}
1490
t'_{STOP}
1496
(CFN-1)TTI + t_{OFFSET}

FIG. 16B